

*Holopus rangi*, d'Orbigny (Pls. I.–Vb.; Pl. Vc. figs. 1–3).

*Dimensions.*

	A. (Pl. I.)	B. (Pl. IV.)
Total height, . . . . .	40.00 mm.	8.50 mm.
Greatest height of cup on trivial side, . . . . .	15.00 „	4.25 „
Least height on bivial side, . . . . .	5.25 „	1.75 „
Greatest diameter of upper edge of calyx, . . . . .	17.00 „	5.00 „
Greatest width of trivial axillary (composite), . . . . .	13.75 „	3.75 „
Greatest width of arm, . . . . .	9.75 „	2.00 „
Diameter of smallest specimen (Pl. V.), . . . . .	3.25 „	
Height of smallest specimen, . . . . .	1.00 „	

The tubular calyx which is attached by an irregular encrusting calcareous expansion of variable extent, is thick walled, inversely conical, and slightly bent to one side (Pls. I., II., IV.; Pl. III. fig. 1). A more or less distinctly marked constriction separates the spreading base from the actual cup, the greatest height of which, measured on the convex side, is 15 mm. Its cavity narrows very rapidly from above downwards, so that the thickness of its walls, which is everywhere considerable, is greatest at its lower extremity (Pl. V. figs. 1–4); and it is probable that the cup is completely closed below by the spreading base, if not some little way above it.

The analogy of other Crinoids leads one to believe that the cup is composed of radial plates above, and of basals below; but it is difficult to define the limits of either. The radials, however, may be traced downwards some little way, owing to the differences of texture in the limestone network. Sections were made for Sir Wyville Thomson of the least perfect of Sir Rawson Rawson's specimens. The articular faces round the upper edge of the calyx are shown in Pl. V. fig. 1 (compare also Pl. III. figs. 1, 2). They were described as follows by Sir Wyville Thomson<sup>1</sup>—“Each facet is traversed by a transverse articulating ridge, a little in front of which there is the mouth of the tube which lodges the sarcode axis of the joints, and a little behind its centre there is a somewhat longer aperture which appears to lead into the cancellated structure of the outer part of the wall. There are two large shallow muscular impressions on the surface of the facet on the proximal aspect of the transverse ridge.” The larger of these two apertures is not the opening of a canal, like the smaller and inner one; but it leads into a deep pit which lodges the dorsal ligament connecting the radials with the joints above them. It reappears upon the proximal faces of these joints, and upon the articular surfaces of all the arm-joints (Pl. III. figs. 3–15). In most Crinoids this pit is merely the deepest part of a large fossa lodging the dorsal ligament (Pl. VIIa. fig. 15, *ld'*. Pl. VIIb. fig. 5; Pl. VIIIa. fig. 7—*ld*; Pl. X. fig. 4; Pl. XX. fig. 7); and there is an approach to this condition in the later arm-joints of *Holopus*, which have a large portion of the articular

<sup>1</sup> *Proc. Roy. Soc. Edin.*, 1876–77, p. 407.